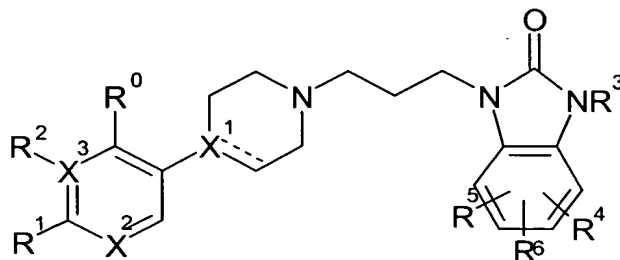


What Is Claimed Is:

1. A method of treating or preventing a novelty-seeking disorder in a subject comprising administering to the subject:

5 (b) an amount of a compound of the formula



wherein X^1 , X^2 and X^3 are independently selected from carbon and nitrogen;

R^0 , R^1 and R^2 are independently selected from hydrogen, halo (e.g., chloro, fluoro, bromo or iodo), (C₁-C₆)alkyl optionally substituted with from one to three fluorine atoms and (C₁-C₆)alkoxy optionally substituted with from one to three fluorine atoms;

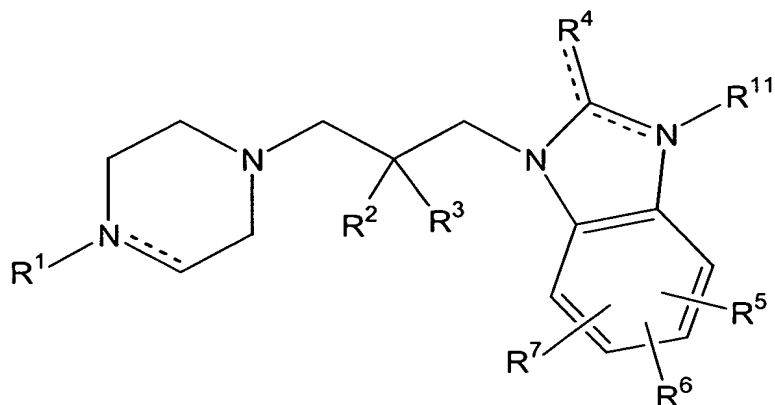
10 R^3 is hydrogen, (C₁-C₆)alkyl or benzyl, wherein the phenyl moiety of said benzyl group may optionally be substituted with from one or more substituents, independently selected from halo, cyano, (C₁-C₆)alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₆)alkoxy optionally substituted with from one to three fluorine atoms, (C₁-C₆)alkylsulfonyl, (C₁-C₆)alkylamino, amino, di-(C₁-C₆)alkylamino and (C₁-
15 C₆)carboxamido;

R^4 , R^5 and R^6 are independently selected from hydrogen, halo (e.g., chloro, fluoro, bromo and iodo), cyano, (C₁-C₆)alkyl optionally substituted with from one to three fluorine atoms, (C₁-C₆)alkoxy optionally substituted with from one to three fluorine atoms, (C₁-C₆)alkylsulfonyl, (C₁-C₆)acylamino, (phenyl)[(C₁-C₆)acyl]amino, amino, (C₁-
20 C₆)alkylamino and di-(C₁-C₆)alkylamino;

with the proviso that when X^3 is nitrogen, R^2 is absent;

or a pharmaceutically acceptable salt thereof;

(c) an amount of a compound of the formula



wherein each of the dotted lines represents an optional double bond;

X is carbon or nitrogen;

R¹ is benzyl, aryl selected from phenyl, indanyl and naphthyl, or heteroaryl selected
 5 from pyridyl, thienyl, furyl, thiazolyl, isothiazolyl, oxazolyl, isoxazolyl, triazolyl, quinolyl
 and imidazolyl, wherein each of the foregoing aryl, heteroaryl and (C₁-C₄)alkyl groups, and
 the phenyl moiety of the benzyl group, may optionally be substituted with one or more
 substituents, preferably with from zero to two substituents, independently selected from
 halo (e.g., chloro, fluoro, bromo or iodo), (C₁-C₆)alkyl optionally substituted with from one
 10 to three fluorine atoms, (C₁-C₆)alkoxy optionally substituted with from one to three
 fluorine atoms, cyano, -C(=O)R⁸, aryl and heteroaryl, wherein said aryl is selected from
 phenyl, indanyl and naphthyl and said heteroaryl is selected from pyridyl, thienyl, furyl,
 thiazolyl, isothiazolyl, oxazolyl, isoxazolyl, triazolyl, quinolyl and imidazolyl;

R² and R³ are independently selected from hydrogen, hydroxy, (C₁-C₆)alkyl, (C₁-
 15 C₆)alkoxy, cyano, -CONH₂ and -NHC(=O)R⁹, or R² and R³ together form an oxo group;

R⁴ is hydrogen, sulfur, oxygen, (C₁-C₆)alkyl, amino, -NHR¹⁰, -SR¹⁰, OR¹⁰ or
 hydroxy;

R⁵, R⁶ and R⁷ are independently selected from hydrogen, halo (e.g., chloro, fluoro,
 bromo or iodo), cyano, (C₁-C₆)alkyl optionally substituted with from one to three fluorine
 20 atoms, (C₁-C₆)alkoxy optionally substituted with from one to three fluorine atoms, (C₁-
 C₆)alkylsulfonyl, (C₁-C₆)acylamino, (phenyl)[(C₁-C₆)acyl]amino, amino, (C₁-
 C₆)alkylamino, di-(C₁-C₆)alkylamino, aryl and heteroaryl, wherein said aryl is selected

from phenyl, naphthyl and indanyl, and said heteroaryl is selected from pyridyl, thienyl, furyl, thiazolyl, isothiazolyl, oxazolyl, isoxazolyl, triazolyl, quinolyl and imidazolyl;

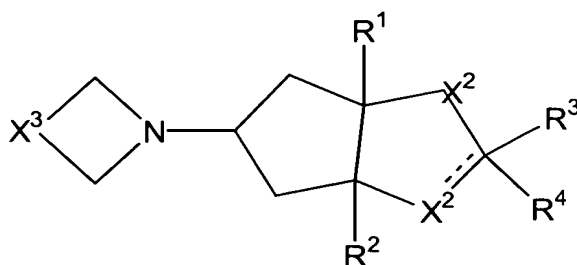
R^8 , R^9 and R^{10} are independently selected from hydrogen and (C_1-C_6) alkyl; and

R^{11} is hydrogen, (C_1-C_6) alkyl or benzyl, wherein the phenyl moiety of said benzyl may optionally be substituted with one or more substituents, preferably with from zero to two substituents, independently selected from halo (e.g., fluoro, chloro, bromo, or iodo), (C_1-C_6) alkyl optionally substituted with from one to three fluorine atoms, (C_1-C_6) alkoxy optionally substituted with from one to three fluorine atoms, amino, cyano, (C_1-C_6) alkylamino and di- (C_1-C_6) alkylamino;

with the proviso that: (a) R^4 can not be either oxygen or hydroxy when both R^2 and R^3 are hydrogen; (b) when the five membered ring of formula I contains a double bond, R^{11} is absent; (c) when R^4 is sulfur or oxygen, R^4 is double bonded to the carbon to which is attached and such carbon is single bonded to both adjacent ring nitrogen atoms; and (d) when X is nitrogen and is double bonded to an adjacent carbon, R^1 is absent.

or a pharmaceutically acceptable salt thereof.

(d) an amount of a compound of the formula



or a pharmaceutically acceptable salt or solvate thereof wherein:

the dashed line in the above formula represents an optional double bond where X^2 is not O;

X^1 and X^2 are each independently selected from O and $-(CH_2)_j-$ wherein j is 1 or 2;

X^3 is $-CH(R^5)N(R^8)CH(R^6)-$, $-CH(R^5)C(R^8)(R^9)CH(R^6)-$, $-C(R^5)=C(R^8)CH(R^6)-$, or $-CH(R^5)C(R^8)=C(R^6)-$;

R^1 and R^2 are each independently H, hydroxy, or C_1 - C_6 alkyl; or R^1 and R^2 are taken together as a bond;

each R^3 is independently selected from $-S(O)_jR^7$ wherein j is an integer ranging from 0 to 2, $-C(O)R^7$, $-OR^7$, $-NC(O)R^7$, $-NR^7R^{12}$, and the substituents provided in the definition of R^7 other than H;

R^4 is absent where the dashed line in the above formula 1 represents a double bond or R^4 is selected from H and the substituents provided in the definition of R^3 ; or R^3 and R^4 are taken together with the carbon atom to which each is attached to form a 5-10 membered mono-cyclic or bicyclic group wherein said cyclic group may be carbocyclic or heterocyclic with 1 to 3 heteroatoms selected from O, S, and $-N(R^{11})-$ with the proviso that two O atoms, two S atoms, or an O and S atom are not attached directly to each other; said cyclic group is saturated or partially unsaturated; aromatic or non-aromatic; 1 or 2 of the carbon atoms in said cyclic group optionally may be replaced by an oxo $-C(O)-$ moiety; and said cyclic group is optionally substituted by 1 to 3 R^{10} groups;

R^5 and R^6 are each independently selected from H and C_1 - C_4 alkyl; or R^5 and R^6 are taken together as $-(CH_2)_q-$ wherein q is 2 or 3; or R^5 or R^6 is taken together with R^8 as defined below;

each R^7 is independently selected from H, $-(CH_2)_t(C_6-C_{10} \text{ aryl})$ and $-(CH_2)_t(4-10 \text{ membered heterocyclic})$, wherein t is an integer ranging from 0 to 5; 1 or 2 of the carbon atoms of said heterocyclic group optionally may be replaced with an oxo $-C(O)-$ group; said aryl and heterocyclic R^7 groups are optionally fused to a benzene ring, a C_5 - C_8 saturated cyclic group, or a 4-10 membered heterocyclic group; the $-(CH_2)_t-$ moieties of the foregoing R^7 groups optionally include a carbon-carbon double or triple bond where t is an integer between 2 and 5; and the foregoing R^7 groups, except H, are optionally substituted by 1 to 5 R^{10} groups;

R^8 is selected from the substituents provided in the definition of R^7 other than H;

R^9 is selected from the substituents provided in the definition of R^7 ; or R^8 and R^9 are taken together with the carbon to which each is attached to form a 5-10 membered mono-cyclic or bicyclic group wherein said cyclic group is carbocyclic or heterocyclic with 1 to 3 heteroatoms selected from O, S, and $-N(R^{11})-$ with the proviso that two O atoms, two S atoms, or an O and S atom are not attached directly to each other; saturated

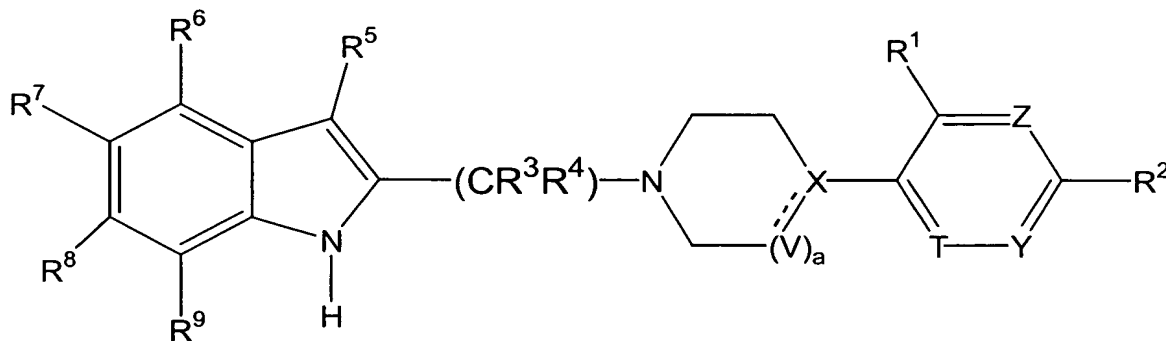
or partially unsaturated; aromatic or non-aromatic; 1 or 2 of the carbon atoms in said cyclic group optionally may be replaced by an oxo -C(O)- moiety; and said cyclic group is optionally substituted by 1 to 3 R¹⁰ groups; or R⁸ taken together with either R⁵ or R⁶ and the separate carbon atoms to which each is attached to form a fused 5-10 membered mono-cyclic or bicyclic group wherein said cyclic group may be carbocyclic or heterocyclic with 1 to 3 heteroatoms selected from O, S, and -N(R¹¹)- with the proviso that two O atoms, two S atoms, or an O and S atom are not attached directly to each other; saturated or partially unsaturated; aromatic or non-aromatic; 1 or 2 of the carbon atoms in said cyclic group optionally may be replaced by an oxo -C(O)- moiety; and said cyclic group is optionally substituted by 1 to 3 R¹⁰ groups;

each R¹⁰ is independently selected from C₁-C₁₀ alkyl, C₂-C₁₀ alkenyl, C₂-C₁₀ alkynyl, halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido, -OR¹¹, -C(O)R¹¹, -C(O)OR¹¹, -NR¹²C(O)OR¹¹, -OC(O)R¹¹, -NR¹²SO₂R¹¹, -SO₂NR¹¹R¹², -NR¹²C(O)R¹¹, -C(O)NR¹¹R¹², -NR¹¹R¹², -S(O)_j(C₁-C₆ alkyl) wherein j is an integer ranging from 0 to 2, -(CH₂)_m(C₆-C₁₀ aryl), -SO₂(CH₂)_m(C₆-C₁₀ aryl), -S(CH₂)_m(C₆-C₁₀ aryl), -O(CH₂)_m(C₆-C₁₀ aryl) and -(CH₂)_m(4-10 membered heterocyclic), wherein m is an integer ranging from 0 to 4; said C₁-C₁₀ alkyl group optionally contains 1 or 2 hetero moieties selected from O, S and -N(R¹²)- with the proviso that two O atoms, two S atoms, or an O and S atom are not attached directly to each other; said aryl and heterocyclic R¹⁰ groups are optionally fused to a C₆-C₁₀ aryl group, a C₅-C₈ saturated cyclic group, or a 4-10 membered heterocyclic group; and said alkyl, aryl and heterocyclic R¹⁰ groups are optionally substituted by 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido, -NR¹²SO₂R¹¹, -SO₂NR¹¹R¹², -C(O)R¹¹, -C(O)OR¹¹, -OC(O)R¹¹, -NR¹²C(O)R¹¹, -C(O)NR¹¹R¹², -NR¹¹R¹², C₁-C₆ alkyl, -OR¹¹ and the substituents listed in the definition of R¹¹;

each R¹¹ is independently selected from H, C₁-C₁₀ alkyl, -(CH₂)_m(C₆-C₁₀ aryl), and -(CH₂)_m(4-10 membered heterocyclic), wherein m is an integer ranging from 0 to 4; said alkyl group optionally includes 1 or 2 hetero moieties selected from O, S and -N(R¹²)-, with the proviso that two O atoms, two S atoms, or an O and S atom are not attached directly to each other; said aryl and heterocyclic R¹¹ groups are optionally fused to a C₆-C₁₀ aryl group, a C₅-C₈ saturated cyclic group, or a 4-10 membered heterocyclic

group; and the foregoing R^{11} substituents, except H, are optionally substituted by 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido, $-C(O)R^{12}$, $-C(O)OR^{12}$, $-CO(O)R^{12}$, $-NR^{12}C(O)R^{13}$, $-C(O)NR^{12}R^{13}$, $-NR^{12}R^{13}$, hydroxy, C_1 - C_6 alkyl, and C_1 - C_6 alkoxy; and, each R^{12} and R^{13} is independently H or C_1 - C_6 alkyl;

(e) an amount of a compound of the formula



or the pharmaceutically acceptable salt thereof, wherein the broken line represents an optional double bond;

a is 0 or 1, wherein when a is 0, X may form an optional double bond with the carbon adjacent to V;

V is CHR^{10} wherein R^{10} is hydrogen or (C_1-C_6) alkyl;

T is nitrogen or CH;

X is nitrogen or CR^{11} wherein R^{11} is hydrogen, (C_1-C_6) alkyl, (C_1-C_6) alkoxy, hydroxy or cyano;

Y and Z are each independently nitrogen or CR^{12} wherein R^{12} is hydrogen, chloro, bromo, trifluoromethyl, trifluoromethoxy, cyano, (C_1-C_6) alkoxy or (C_1-C_6) alkyl;

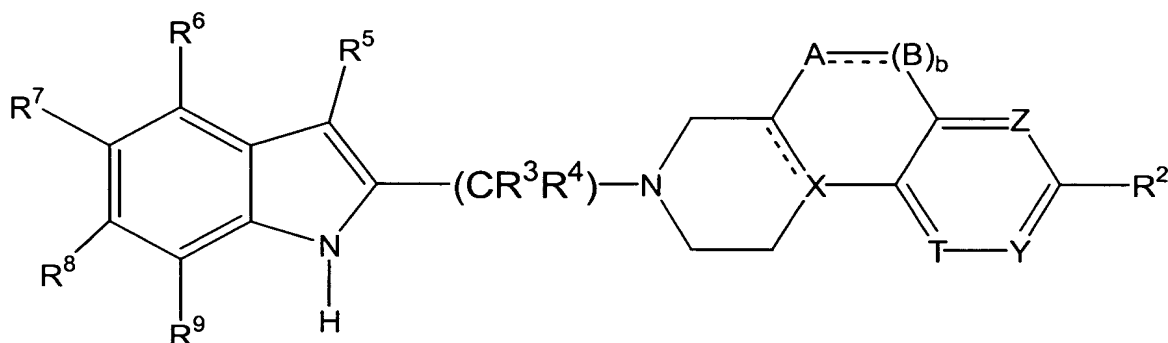
R^1 is hydrogen, fluoro, chloro, bromo, trifluoromethyl, trifluoromethoxy, cyano or (C_1-C_6) alkyl;

R^2 , R^6 , R^7 , R^8 and R^9 are each independently selected from hydrogen, fluoro, chloro, bromo, trifluoromethyl, trifluoromethoxy, cyano, (C_1-C_6) alkoxy and (C_1-C_6) alkyl;

R^3 and R^4 are each independently hydrogen or (C_1-C_6) alkyl; and

R^5 is hydrogen, (C_1-C_6) alkoxy, trifluoromethyl, cyano, (C_1-C_6) alkyl or $R^{13}CO$ - wherein R^{13} is amino, (C_1-C_6) alkylamino, $((C_1-C_6)alkyl)_2$ amino, (C_1-C_6) alkyl, (C_6-C_{10}) aryl;

or when a is 1, R^1 and R^{10} may be taken together with the carbons to which they are attached to form a compound of the formula



wherein the broken lines represent optional bonds;

5 T, X, Y, Z, R^2 , R^3 , R^4 , R^5 , R^6 , R^7 , R^8 and R^9 are defined as above;

b is 0 or 1; and

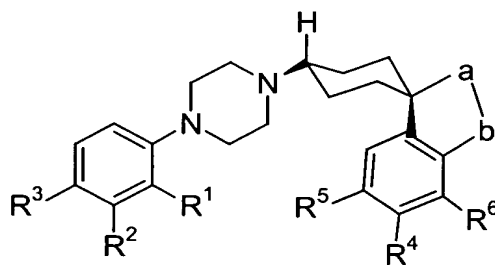
A and B are each independently CH, CH_2 , oxygen, sulfur, NH or nitrogen;

with the proviso that when X is nitrogen, the optional double bond between X and V does not exist;

10 with the proviso that when b is 0, the optional double bond between A and B does not exist; and

with the proviso that when b is 1, A and B cannot both be oxygen or sulfur;

or (f) an amount of a compound of the formula



15 wherein a is oxygen, CH_2 , $C(CH_3)_2$, NR^{10} , sulfur, SO or SO_2 ;

b is oxygen, CH_2 , $C=O$, $C=NR^{11}$, $C=NOH$, SO_2 , Sulfur, SO, $C=NO(C_1-C_5)alkyl$ or CR^7R^8 ;

each of R^1 through R^8 is selected, independently, from hydrogen, halo (e.g., chloro, fluoro, bromo or iodo), trifluoromethyl, cyano and hydroxy, or R^7 and R^8 together

can be C(=O)NH₂ or C(=O)N(C₁-C₄)alkyl, with the proviso that neither R⁷ nor R⁸ can be halo when a is oxygen, NR¹¹, sulfur, SO or SO₂; and

each of R¹⁰ and R¹¹ is selected, independently, from hydrogen, benzyl and (C₁-C₆)alkyl;

5 and the pharmaceutically acceptable salts of such compounds

or a pharmaceutically acceptable salt thereof effective to treat or prevent novelty-seeking disorder in the subject.

2. The method of claim 1, wherein the novelty-seeking disorder is selected from
10 pathological gambling, attention deficit disorder with hyperactivity disorder, substance addiction, drug addiction, alcohol addiction and sex addiction.

3. The method of claim 1, wherein the compound is selected from:
(7R, 9aS)-7(4-fluorophenoxy)methyl-2-(5-fluoropyrimidin-2-yl)-2,3,4,6,7,8,9,9a-
15 octahydro-1H-pyrido[1,2-a]pyrazine;
(7R,9aS)-7-(3,4-difluorophenoxy)-methyl-2-(5-fluoropyrimidin-2-yl)-
2,3,4,6,7,8,9,9a-octahydro-1H-pyrido[1,2-a]pyrazine;
(7R,9aS)-7-(4-fluorophenoxy)methyl-2-(5-chloropyridin-2-yl)-2,3,4,6,7,8,9,9a-
octahydro-1H-pyrido[1,2-a]pyrazine;
20 2-(5-fluoropyrimidin-2-yl)-2,3,4,6,7,8,9,9a-octahydro-1H-pyrido[1,2a]-pyrazin-7-ylmethyl]-3H-benzoxazol-2-one hydrochloride;
3-[(7R,9aS)-2-(5-chloropyridin-2-yl)-2,3,4,6,7,8,9,9a-octahydro-1H-pyrido[1,2-a]pyrazin-7-ylmethyl]-3H-benzoxazol-2-one;
((7S,9aS)-7-(3-cyanophenoxy)methyl-2-(5-fluoropyrimidin-2-yl)-2,3,4,6,7,8,9,9a-
25 octahydro-1H-pyrido[1,2-a]pyrazine.

4. The method according to claim 1, wherein said compound is selected from the group consisting of:
1-[3-(4-pyridin-2-yl-piperazin-1-yl)-propyl]-1,3-dihydro-benzoimidazol-2-one;
30 1-{3-[4-(5-trifluoromethyl-pyridin-2-yl)-piperazin-1-yl]-propyl}-1,3-dihydro-benzoimidazol-2-one;

1-{3-[4-(5-chloro-pyridin-2-yl)-piperazin-1-yl]-propyl}-1,3-dihydro-benzoimidazol-2-one;

1-{3-[4-(5-bromo-pyridin-2-yl)-piperazin-1-yl]-propyl}-1,3-dihydro-benzoimidazol-2-one;

5 1-[3-(2,3,5,6-tetrahydro-[1,2']bipyrazinyl-4-yl)-propyl]-1,3-dihydro-benzoimidazol-2-one; and

1-{3-[4-(6-chloro-pyridazin-3-yl)-piperazin-1-yl]-propyl}-1,3-dihydro-benzoimidazol-2-one.

10 5. The method according to claim 1, wherein said compound is selected from the group consisting of:

1-Benzoimidazol-1-yl-3-[4-(4-fluoro-phenyl)-piperazin-1-yl]-propan-2-ol;

1-(5-Chloro-benzoimidazol-1-yl)-3-[4-(4-fluoro-phenyl)-piperazin-1-yl]-propan-2-ol;

15 1-{3-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-propyl}-5-trifluoromethyl-1H-benzoimidazole;

1-{3-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-propyl}-1H-benzoimidazole;

1-{3-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-propyl}-3-methyl-1,3-dihydro-benzoimidazol-2-one;

20 1-Benzoimidazol-1-yl-3-(4-o-tolyl-piperazine-1-yl)-propan-2-ol;

1-Benzoimidazol-1-yl-3-(4-m-tolyl-piperazine-1-yl)-propan-2-ol;

1-Benzoimidazol-1-yl-3-(4-p-tolyl-piperazin-1-yl)-propan-2-ol;

1-Benzoimidazol-1-yl-3-{4-chloro-phenyl)-phenyl-methyl]-piperazin-1-yl}-propan-2-ol;

25 1-Benzoimidazol-1-yl-3-[4-(2-chloro-phenyl)-piperazin-1-yl]-propan-2-ol;

1-Benzoimidazol-1-yl-3-[4-(4-chloro-phenyl)-piperazin-1-yl]-propan-2-ol;

1-Benzoimidazol-1-yl-3-[4-(3-chloro-phenyl)-piperazin-1-yl]-propan-2-ol;

1-Benzoimidazol-1-yl-3-[4-(3-chloro-phenyl)-piperazin-1-yl]-propan-2-ol;

1-Benzoimidazol-1-yl-3-(4-pyrimidin-2-yl-piperazin-1-yl)-propan-2-ol;

30 1-Benzoimidazol-1-yl-3-(4-naphthalen-1-yl-piperazin-1-yl)-propan-2-ol;

1-Benzoimidazol-1-yl-3-[4-(3-trifluoromethyl-phenyl)-piperazin-1-yl]-propan-2-ol;

1-Benzoimidazol-1-yl-3-(4-benzyl-piperazin-1-yl)-propan-2-ol;
 1-Benzoimidazol-1-yl-3-[4-(2-trifluoromethyl-benzyl)-piperazin-1-yl]-propan-2-ol;
 1-Benzoimidazol-1-yl-3-[4-(2-ethoxy-benzyl)-piperazin-1-yl]-propan-2-ol;
 1-Benzoimidazol-1-yl-3-{4-{3-(3-trifluoromethyl-phenyl)-propyl}-piperazin-1-yl}-
 5 propan-2-ol; and

1-Benzoimidazol-1-yl-3-{4-[2-(3-trifluoromethyl-phenyl)-ethyl]-piperazin-1-yl}-
 propan-2-ol.

6. The method according to claim 1 wherein said compound is selected from the
 10 group consisting of:

(2'α,3'aβ,5'α,6'aβ)-5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-hexahydropentalene-
 2'-one;

(2'α,3'aβ,5'α,6'aβ)-5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-2'-phenyl-
 octahydro-pentalen-2'ol, maleate salt;

15 (2'α,3'aβ,5'α,6'aβ)-5'-[4-(4-Cyano-3-fluoro-phenyl)-piperazin-1-yl]-
 hexahydropentalene-2-one, ethylene ketal;

(2'α,3'aβ,5'α,6'aβ)-5'-[4-(4-Cyano-3-fluoro-phenyl)-piperazin-1-yl]-
 hexahydropentalene-2-one;

(2'α,3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-hydroxy-5'-phenyl-octahydro-pentalen-
 20 2'-yl)-piperazin-1-yl]-benzonitrile, maleate salt;

(2α,3aβ,5α,6aβ)-5-Hydroxy-5-phenyl-hexahydro-pentalen-2-one;

(2'α,3'aβ,5'α,6'aβ)-5'-[4-(2-Methoxy-phenyl)-piperazin-1-yl]-2'-phenyl-
 octahydro-pentalen-2'ol, maleate salt;

(2'α,3'aβ,5'α,6'aβ)-5'-[4-(4-Fluoro-1-pyrimidyl)-piperazin-1-yl]-2'-(4-fluoro-
 25 phenyl)-octahydro-pentalen-2'ol, maleate salt;

(2'α,3'aβ,5'α,6'aβ)-5'-[4-(4-Cyano-3-fluoro-phenyl)-piperazin-1-yl]-2'-(4-
 fluoro-phenyl)-octahydro-pentalen-2'ol, maleate salt;

(2'α,3'aβ,5'α,6'aβ)-5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-2'-(4-fluoro-
 phenyl)-octahydro-pentalen-2'ol, maleate salt;

- (2'α, 3'aβ, 6'aβ)-1-(4-Fluoro-phenyl)-4-(5'-phenyl-1',2',3',3'a,4',6'a-hexahydro-pentalen-2'-yl)-piperazine dihydrochloride;
- (2'α, 3'aβ, 6'aβ)-5-Fluoro-2-[4-(5'-phenyl-1',2',3',3'a,4',6'a-hexahydro-pentalen-2'-yl)-piperazin-1-yl]-pyrimidine maleate;
- 5 (2'α,3'aβ,6'aβ)-2-Fluoro-4-[4-(5'-phenyl-1',2',3',3'a,4',6'a-hexahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile, maleate;
- (2'α, 3'aβ, 6'aβ)-2-Fluoro-4-{4-[5-(2-methoxy-phenyl)-1',2',3',3'a,4',6'a-hexahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- (2'α, 3'aβ, 6'aβ)-1-Phenyl-4-(5'-phenyl-1',2',3',3'a,4',6'a-hexahydro-pentalen-2'-yl)-piperazine, dimaleate;
- 10 (2'α, 3'aβ, 5'α, 6'aβ)-1-(4-Fluoro-phenyl)-4-(5'-phenyl-octahydro-pentalen-2'-yl)-piperazine, dihydrochloride;
- (2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(5'-phenyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-pyrimidine, maleate;
- 15 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-phenyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-1-Phenyl-4-(5'-phenyl-octahydro-pentalen-2'-yl)-piperazine, maleate;
- (2'α,3'aβ,5'α,6'aβ)-5'-Hydroxy-5'-(2-trifluoromethyl-phenyl)-hexahydro-pentalen-2'-one;
- 20 (2'α,3'aβ,6'aβ)-5'-(2-trifluoromethyl-phenyl)-3,3a,4,6a-tetrahydro-1H-pentalen-2'-one, ethylene ketal;
- (2'α,3'aβ,5'α,6'aβ)-5'-(2-Trifluoromethyl-phenyl)-hexahydro-1H-pentalen-2'-one, ethylene ketal;
- 25 (2'α,3'aβ,5'α,6'aβ)-5'-(2-Trifluoromethyl-phenyl)-hexahydro-1H-pentalen-2'-one;
- (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-trifluoromethyl-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- 30

- (2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-{4-[5'-(2-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-pyrimidine, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(3-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- 5 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(4-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-o-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(5'-o-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-pyrimidine, maleate;
- 10 (2'α, 3'aβ, 5'α, 6'aβ)-5-Chloro-2-{4-[5'-(2-methoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-pyrimidine, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-5-Chloro-2-[4-(5'-o-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-pyrimidine, maleate;
- 15 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-methanesulfonyl-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-1-Phenyl-4-[5'-(3-pyrrolidin-1-ylmethyl-phenyl)-octahydro-pentalen-2'-yl]-piperazine, dimaleate;
- 5-Trimethylstannayl-3,3a,4,6a-tetrahydro-1H-pentalen-2-one, ethylene ketal;
- 20 5-(2-Cyano-phenyl)-3,3a,4,6a-tetrahydro-1H-pentalen-2-one;
- (2'α, 3'aβ, 5'α, 6'aβ)-2-Cyano-4-{4-[5'-(2-fluoro-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-trifluoromethoxy-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- 25 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-fluoro-phenyl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;
- (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-pyridin-2-yl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile, dihydrochloride;
- (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-m-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile, maleate;
- 30

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(5'-p-tolyl-octahydro-pentalen-2'-yl)-piperazin-1-yl]-benzonitrile, maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-N-(2-{5'-[4-(5-Fluoro-pyrimidin-2-yl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-phenyl)-acetamide, maleate;

5 (2'α, 3'aβ, 5'α, 6'aβ)-N-(2-{5'-[4-(4-Cyano-3-fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-phenyl)-acetamide, maleate;

5-(2-Cyano-phenyl)-3,3a,4,6a-tetrahydro-1H-pentalen-2-one, ethylene ketal;

2-(5-Oxo-octahydro-pentalen-2-yl)-benzamide, ethylene ketal;

(2'α, 3'aβ, 5'α, 6'aβ)-2-{5'-[4-(4-Cyano-3-fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-benzamide, maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydrospiro[isobenzofuran-1(3H),2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-benzonitrile, maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-2-Fluoro-4-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydrospiro[isobenzofuran-1(3H),2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-benzonitrile, maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydrospiro[isobenzofuran-1(3H),2'(1'H)-pentalen]-5'-yl)-piperazin-1-yl]-pyrimidine;

20 (2'β, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydrospiro[isobenzofuran-1(3H),2'(1'H)-pentalen]-5'-yl)-piperazin-1-yl]-pyrimidine;

(2'α, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydro-3'a,6'a-dimethylspiro[isobenzofuran-1(3H),2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-pyrimidine,

25 maleate;

(2'β, 3'aβ, 5'α, 6'aβ)-5-Fluoro-2-[4-(3', 3'a, 4', 5', 6', 6'a-hexahydro-3'a,6'a-dimethylspiro[isobenzofuran-1(3H), 2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-pyrimidine, maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-1-benzopyran-2,2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-benzonitrile, maleate;

5 (2'α, 3'aβ, 5'β, 6'aβ)-2-Fluoro-4-[4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-1-benzopyran-2,2'(1'H)-pentalen]-5'-yl)-1-piperazinyl]-benzonitrile, maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-1-Phenyl-4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-1-benzopyran-2,2'(1'H)-pentalen]-5'-yl]-5'-yl)-piperazine, maleate;

10 (2'β, 3'aβ, 5'α, 6'aβ)-1-Phenyl-4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-1-benzopyran-2,2'(1'H)-pentalen]-5'-yl]-5'-yl)-piperazine, maleate;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-6-fluoro-1-benzopyran-2,2'(1'H)-pentalen]-5'-yl]-5'-yl)-1-piperazinyl]-benzonitrile, maleate;

15 (2'β, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-[4-(3, 3', 3'a, 4, 4', 5', 6', 6'a-hexahydrospiro[2H-6-fluoro-1-benzopyran-2,2'(1'H)-pentalen]-5'-yl]-5'-yl)-1-piperazinyl]-benzonitrile, maleate;

(2α,3aβ,5α,6aβ)-5-Benzylamino-hexahydropentalen-2-one, mono -ethylene ketal;

(2α,3aβ,5α,6aβ)-5-Amino-hexahydropentalen-2-one, mono -ethylene ketal;

20 (2α,3aβ,5α,6aβ)-5-(5-Fluoro-2-nitro-phenylamino)-hexahydropentalen-2-one, mono -ethylene ketal;

(2α,3aβ,5α,6aβ)-5-(2-Amino-5-fluoro-phenylamino)-hexahydropentalen-2-one, mono -ethylene ketal;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(6-fluoro-2-oxo-2,3-dihydro-benzoimidazol-1-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, dimesylate;

25 (2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(2-oxo-2,3-dihydro-benzoimidazol-1-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, mesylate;

(2'α, 3'aβ, 5'α, 6'aβ)-1-{5'-[4-(5-Fluoro-pyrimidin-2-yl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-1,3-dihydro-benzoimidazol-2-one, mesylate;

30 (2α,3aβ,5α,6aβ)-5-(6-Fluoro-2-methyl-benzoimidazol-1-yl)-hexahydro-pentalen-2-one;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(6-fluoro-2-methylbenzoimidazol-1-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, dimesylate;

(2'α, 3'aβ, 5'α, 6'aβ)-6-Fluoro-2-methyl-1-[5'-(4-phenyl-piperazin-1-yl)-octahydro-pentalen-2'-yl]-1H-benzoimidazole, dimaleate;

5 (2α,3aβ,6aβ)-5-(1H-Indol-3-yl)-3,3a,4,6a-tetrahydro-1H-pentalen-2-one, mono-ethylene ketal;

(2'α, 3'aβ, 5'α, 6'aβ)-2-Fluoro-4-{4-[5'-(1H-indol-3-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;

10 (2'α, 3'aβ, 5'α, 6'aβ)-3-[5'-(4-Phenyl-piperazin-1-yl)-octahydro-pentalen-2'-yl]-1H-indole, maleate;

(2α,3aβ,6aβ)-5-(4-Fluoro-phenoxy)-hexahydro-pentalen-2-one;

(2'α, 3'aβ, 5'β, 6'aβ)-1-[5'-(4-Fluoro-phenoxy)-octahydro-pentalen-2'-yl]-4-phenyl-piperazine, maleate;

15 (2'α, 3'aβ, 5'β, 6'aβ)-2-Fluoro-4-{4-[5'-(4-fluoro-phenoxy)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-5-Fluoro-2-{4-[5'-(4-fluoro-phenoxy)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-pyrimidine, maleate;

(2'β, 3'aβ, 5'β, 6'aβ)-1-[5'-(4-Fluoro-phenoxy)-octahydro-pentalen-2'-yl]-4-phenyl-piperazine, maleate;

20 (2'α, 3'aβ, 5'β, 6'aβ)-2-[5'-(4-Phenyl-piperazin-1-yl)-octahydro-pentalen-2'-yl]-isoindole-1,3-dione maleate;

(2'α,3'aβ,5'α,6'aβ)-5-Hydroxy-hexahydro-pentalen-2-one, ethylene ketal;

(2'α,3'aβ,5'α,6'aβ)-2-Oxo-3-(5-oxo-octahydro-pentalen-2-yl)-2,3-dihydro-benzoimidazole-1-carboxylic acid tert-butyl ester, ethylene ketal;

25 (2'α,3'aβ,5'α,6'aβ)-2-(5-oxo-octahydro-pentalen-2-yloxy)-3H-benzoimidazole-1-carboxylic acid tert-butyl ester, ethylene ketal;

(2'β, 3'aβ, 5'α, 6'aβ)-3-{5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-2-oxo-2,3-dihydro-benzoimidazole-1-carboxylic acid tert-butyl ester;

30 (2'β, 3'aβ, 5'α, 6'aβ)-1-{5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-1,3-dihydro-benzoimidazol-2-one, maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-2-Fluoro-4-{4-[5'-(2-oxo-2,3-dihydro-benzoimidazol-1-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-benzonitrile, maleate;

(2'β, 3'aβ, 5'α, 6'aβ)-1-{5'-[4-(3,4-Difluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-1,3-dihydro-benzoimidazol-2-one, maleate;

5 (2'β, 3'aβ, 5'α, 6'aβ)-2-[5'-(4-Phenyl-piperazin-1-yl)-octahydro-pentalen-2'-yloxy]-1H-benzoimidazole, maleate;

(2'α,3'aβ,5'α,6'aβ)-2-(5-Oxo-octahydro-pentalen-2-yl)-isoindole-1,3-dione;

(2'α, 3'aβ, 5'β, 6'aβ)-2-[5'-(4-Phenyl-piperazin-1-yl)-octahydro-pentalen-2'-yl]-isoindole-1,3-dione, maleate;

10 (2'α, 3'aβ, 5'β, 6'aβ)-4-{4-[5'-(1,3-Dioxo-1,3-dihydro-isoindol-2-yl)-octahydro-pentalen-2'-yl]-piperazin-1-yl}-2-fluoro-benzonitrile, maleate;

(2'α, 3'aβ, 5'β, 6'aβ)-2-{5'-[4-(5-Fluoro-pyrimidin-2-yl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-isoindole-1,3-dione, maleate;

15 (2'β, 3'aβ, 5'α, 6'aβ)-2-{5'-[4-(3,4-Difluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-isoindole-1,3-dione, maleate;

(2'β, 3'aβ, 5'α, 6'aβ)-2-{5'-[4-(4-Fluoro-phenyl)-piperazin-1-yl]-octahydro-pentalen-2'-yl}-isoindole-1,3-dione, maleate; and,

(2'β, 3'aβ, 5'α, 6'aβ)-N-[5-(4-Phenyl-piperazin-1-yl)-octahydro-pentalen-2-yl]-benzamide, maleate.

20

7. The method of claim 1, the compound is selected from the group consisting of:

2-[4-(3-Trifluoromethyl-phenyl)-piperazin-1-ylmethyl]-1H-indole;

5-Fluoro-2-[4-(3-trifluoromethyl-phenyl)-piperazin-1-ylmethyl]-1H-indole;

5-Fluoro-2-[4-(4-fluoro-phenyl)-piperazin-1-ylmethyl]-1H-indole;

25 5-Fluoro-2-[4-(4-fluoro-phenyl)-piperazin-1-ylmethyl]-1H-indole;

5-Fluoro-2-(4-pyridin-2-yl-piperazin-1-ylmethyl)-1H-indole;

2-[4-(6-Chloro-pyridazin-3-yl)-piperazin-1-ylmethyl]-5-fluoro-1H-indole;

5-Fluoro-2-(4-[5'-fluoro]pyridin-2-yl-piperazin-1-ylmethyl)-1H-indole;

2-(4-pyridin-2-yl-piperazin-1-ylmethyl)-1H-azaindole;

30 5-Fluoro-2-(4-pyridin-2-yl-piperazin-1-ylmethyl)-1H-azaindole; and

2-[4-(4-fluoro-phenyl)-piperazin-1-ylmethyl]-1H-azaindole.

8. A method of treating or preventing a novelty-seeking disorder in a subject, comprising administering to the subject an amount of a dopamine D4 receptor ligand, or
5 a pharmaceutically acceptable salt thereof, effective to treat or prevent a novelty-seeking disorder in the subject.
9. The method of claim 8, wherein the novelty-seeking disorder is selected from pathological gambling, attention deficit disorder with hyperactivity disorder, substance
10 addiction, drug addiction, alcohol addiction and sex addiction.